Efficiency and Performance of Islamic Banks in Bangladesh

By
Muhamad Abduh[*]
Sidratul Mahabub Hasan
Alfatih Gesan Pananjung

Abstract

The aim of this study is to investigate the efficiency and performance of five Islamic banks in Bangladesh namely, Islami Bank Bangladesh Limited, Al-Arafah Islami Bank Limited, Social Islami Bank Limited, Shahjalal Islami Bank Limited and First Security Islami Bank Limited. Data are collected through their published annual reports from the year of 2006 to 2010. In addition, methods used to measure the performance and efficiency of Islamic banks are ratio analysis and data envelopment analysis respectively. With regard to banks' performance, this study concludes that Shajalal Islami Bank limited is better than other Islamic banks in terms of its ROA, ROE, ETA, CAR, IER and AU ratios. On the other hand, with regard to banks' efficiency, all Islamic banks have shown an improvement on their efficiency level. However, the result shows that First Security Islami Bank is better in terms of efficiency. This study complements other studies which discus about performance and efficiency in Islamic banks, particularly in the case of Bangladesh.

Keywords: Islamic bank, performance, efficiency, Bangladesh.

1. Introduction:

The emergence of Islamic banking started in the mid-twentieth century and has continued until this very day. It is becoming a novel phenomenon and is gaining attention of the whole financial world. Islamic banking has been construed as financial

[*] Authors: Muhammad Abduh, Assistant Professor, IIUM Institute of Islamic Banking and Finance International Islamic University Malaysia.
Sidratul Mahabub Hasan, a Postgraduate Student, Department of Finance, Kulliyah of Economics and Management Sciences, International Islamic University Malaysia.
Alfatih Gesan Pananjung, Senior Lecturer Bahrain Institute of Banking and Finance, Manama, Bahrain
Corresponding author. Fax: 00-60-03-2094-7728. Email: abduh.iium@gmail.com

intermediaries that mobilize resources within the direction of Shari'ah approved projects by using Islamic financing instruments (Siddiqi, 1983). Despite certain linkages in terms of similarities with its conventional counterpart in a wide array of aspects, Islamic banking in most parts is to be regarded as having characteristics and features that are significantly distinctive and unique. Molla *et.al*., (1988), observed that, the aim of Islamic banking is not only the elimination of interest based transactions and the introduction of the Zakah system (religious alms that contributes to the poverty alleviation). This is further supported by Warde (2000), who concludes that one of the salient features of Islamic banking and finance, which makes it different from its conventional counterpart is that Islamic banking strives for a just, fair and balanced society as pictured in the area of knowledge of Islamic economics. These differences in objectives, along with other fundamental differences, whether philosophical, technical, or practical, in addition to the opportunity that Islamic banking presents for the financial sector, have contributed to the tremendous growth and expansion of Islamic banking encompassing a multitude of countries globally over the last 30 years. Today, Islamic banking is not merely of interest for Muslim customers but also for non-Muslims customers who see the benefit from such a system (Dar and Presley, 2000).

The fact that Islamic banks have inherently its own unique features that act as the foundation on why it should thrive differently as compared to conventional banks, it does not mean Islamic banks operate exclusively in a different financial system, completely separate from the other financial institutions. In one aspect for example, Islamic banks do face the same variety of risks as does what the conventional banks have experienced and have had to deal with, and actually even more. The scopes of competition are also equivalent, thus Islamic banks have to compete with conventional banks head on. The main reason for this is because both Islamic banks and conventional banks belong in the same universal financial system. Because of this it is imperative that Islamic banks also need to take into consideration each and every factor that ensures its continuous healthy existence, and factors hinder it from achieving so. Islamic banks, as with other types of financial institutions in the global system, are constantly looking for new ways to add value to their services due to increasingly tighter competition, globalization pressure, volatility of market dynamics.

In order to do this, Islamic banks must improve their performance, but the question of what factors drive performance must then be answered together with an analysis of the current performance of Islamic banks. This question must be addressed from the strategic level right until its operational details. Parallel to the aforementioned effort, a benchmark in measuring the efficiency of Islamic banks must then be established. In measuring efficiency, a-priori knowledge of both input and output of an Islamic bank is implied. The most widely frequently studied efficiency issue is of operational efficiency, and hence this is what this paper mainly discusses, especially based on certain financial ratios that are used. It is understood, however, that even operational efficiency may assume a wide range of input (technology, human resources, organizational structure, etc.) and output (loans; transactions processed, etc.) assumptions.

The specific context of efficiency in this paper is related to the ability to produce a result with minimum effort or resources. Efficiency can be used as an indicator to measure a bank's success. It measures how close a production unit gets to its production

possibility frontier, which is composed of sets of points that optimally combine inputs in order to produce one unit of output. Basically, the term "Economic Efficiency" refers to the use of resources to maximize the production of goods and services. It can be measured in three ways; maximization of output, minimization of cost, and maximization of profits (Kumbhakar and Lovell, 2003). The aforementioned efforts should then be translated to Islamic banks wanting to maintain a continuously increasing level of efficiency in all areas of the bank, which in turn will affect the performance of the Islamic bank, portrayed by its periodic financial reports.

However, there are not yet many researches that have been done to measure the efficiency of Islamic banks in Bangladesh. Islamic banking in Bangladesh seems to lack participation from Muslims who shape the majority of the population in the country due to the lack of awareness in regard to what Islamic banking is and why it should be the obvious alternative of its conventional counterpart. In another aspect, the performance gap between conventional and Islamic banks is too high, as it can be clearly seen that in most cases conventional banks tend to better in a multitude of aspects as compared to Islamic banks. In order to compete and resolve the situation in favour of the Islamic financial institutions, the existing Bangladeshi Islamic banks probably need to develop effective business strategies that can be directly implemented. Efficiency measurement efforts can be a useful tool for in that can position the relevant parties responsible in formulating these kinds of strategies. Hence, the aim of this study is to empirically investigate the performance and the efficiency level of five of the Islamic banks in Bangladesh namely: Islami Bank Bangladesh Limited, Al-Arafah Islami Bank Limited, Social Islami Bank Limited, Shahjalal Islami Bank Limited and First Security Islami Bank Limited.

2. Islamic banks in Bangladesh:

The banking landscape in Bangladesh consists of a mix of public, private and foreign commercial banks. Bangladesh Bank is the central bank of the country, established soon after the independence in 1971. As with any other central banks of any country, Bangladesh bank has the responsibility to control the monetary policies of the country, which also includes the control of all commercial banks that are established within the country. Islamic banking's resurgence spread to Bangladesh in 1983 with the opening of Islamic Bank of Bangladesh Limited (IBBL).

Following the establishment of the first Islamic commercial bank in the country, an ever-increasing number of investors were interested to open up other Islamic banks. Recent statistical data shows that the growth of Islamic banking in Bangladesh is steadily progressing day by day, which is contrary to how conventional banks in general are doing at present. As of 2011, there are 46 banks working in the financial market of the country that includes six Islamic banks and nine foreign banks. Interestingly, Ahmed *et.al*., (2006) and Ahmad and Hassan (2007) found that Islamic banks in Bangladesh have shown relatively better performance in terms of loan recovery and various other financial measures as compared to its conventional counterpart.

In Bangladesh, Islamic banking is steadily becoming an established major player in the mainstream banking industry around the world. Based on the existing supporting factors that are in support of Islamic banking growth, it does appear that the inclination is likely to continue. However it is important that continuous efforts of improvement in areas that are lacking need to be focused on and resolved.

3. Literature Review:

In the banking sector, the efficiency of banks is considered to be an important issue. Fundamentally, banking efficiency can be measured in two ways, (i) Technical Efficiency; and (ii) Cost Efficiency (CE). A producer is considered technically efficient if, and only if, it is impossible to produce more of any output without producing less of some other output or using more of some inputs (Koopmans, 1951).

Improving the efficiency of the banking sector has been considered an important issue in Bangladesh. In 1986, the Government formed the national commission on money, banking, and credit in order to find solutions for efficient operation and management of the banking system. In addition, in 1991 a taskforce was formed to formulate strategies to promote the development of the banking and financial sector. In the same period, the World Bank has assisted in the conducting of several studies on banking sector reform in Bangladesh (Shameem, 1995).

To measure efficiency of Islamic banks in Bangladesh, Sarker (1999) looked at the performance and operational efficiency of Bangladeshi Islamic banks and suggested that Islamic banks can survive even within a conventional banking framework. Islamic banks offer products and services which are very similar to conventional banks. However, the approaches of Islamic banks are clearly different from the ones of conventional banks (Ahmad, 2000; Chapra, 2000; Ahmad and Hassan, 2007). On another matter, there is a lack of interbank money market which also affects the performance of the Islamic banking in Bangladesh. Legal reserve requirements have also been observed. According to Ahmad and Hassan (2007), the independent banking act should be constituted to control, guide and supervise the operations and practices of Islamic banks. From the empirical studies that have been conducted, there is strong evidence to believe that efficiency gains can be secured through competition. In other words, regulation, if properly implemented, will enhance competition and make the bank more effective in the market place framework.

4. Methods:

4.1 Ratio Analysis:

This study uses ratio analysis measurements in analyzing the banks' performance. This method has been adopted by many researchers, such as Chen and Shimerda (1981), Sabi (1996), and Ahmad and Hassan (2007). This methodology shows various positive aspects, however the main advantage is that this method removes existing disparities. It is common that banks that are used as the subject matter of the research are not equal in terms of size. This method removes disparities and brings all banking firms at par. In this study, five Islamic banks in Bangladesh are included. The financial statements that are used for the research are obtained from the annual report of each banks and are taken from the period of 2006 to 2010.

4.2 Profitability Ratio:

4.2.1 *Return on Asset Ratio (ROA):*

ROA is the indicator of measuring managerial efficiency. Return on Asset ratio shows how a bank can convert its asset into net earnings. The formula for calculating return on asset ratio is, Return on Assets (ROA) = Net Profit % Total Assets. A higher ratio indicates a higher ability and therefore is an indicator of better performance.

4.2.2 *Return on Equity Ratio (ROE)* :

ROE is an indicator of measuring managerial efficiency. ROE shows how well a company uses investment funds to generate earnings. It measures a firm's efficiency at generating profits from every unit of shareholders' equity. A higher ratio is an indicator of higher managerial performance. The formula for calculating ROE is, Return on Equity (ROE) = Net Profit % Equity.

4.3 Credit Risk Performance:

4.3.1 Equity to Total Assets ETA:

The ETA ratio is used to measure the credit risk performance of banks. The formula to calculate the ETA ratio is Common Equity % Assets. This ratio measure's the equity capital in the form of a percentage with regard to total assets. It shows the potential of protection of the banks against investment and assets. It also demonstrates capacity of shock absorbance for losses of potential loaned assets. A high ratio is favorable for the bank in order for it to maintain the assets losses.

4.3.2 *Capital Adequacy Ratio (CAR):*

The CAR is a measure of the amount of a bank's capital expressed as a percentage of its risk weighted credit exposures. A high CAR doesn't always indicate good performance. Having a high CAR will mean that large amount of money of the bank is stuck in provisions or risk management, which translates to limited money for investment. A standard CAR is around 12%. CAR is calculated as CAR= Tier One Capital Tier Two capital % risk weighted Assets.

4.4 Managerial efficiency:

4.4.1 *Income Expense Ratio (IER):*

The IER is the ratio that measures the amount of income earned per dollar of operating expense. This is the most commonly and widely used ratio in the banking sector to assess the managerial efficiency in generating total income in respect of controlling its operating expenses. A high IER is preferred over a lower one as this indicates the ability and efficiency of the bank in generating more total income in comparison to its total operating expenses. IER is calculated as IER = Total Income % Total operating expenses.

4.5 Management Ability:

4.5.1 *Asset Utilization (AU):*

How effectively the bank is utilizing all of its assets is measured by the assets utilization (AU) ratio. The bank is presumably said to be using its assets effectively in generating total revenues if the AU ratio is high. If the AU ration is low, the bank is not using its assets to its optimum capacity and should either increase total revenues or dispose of some of the assets (Ross *et.al*., 2005). AU is calculated as AU = total revenue % total asset.

4.6 Data Envelopment Analysis (DEA) :

The DEA was initially developed by Charnes *et.al.*, (1978) to evaluate the efficiency of public sector non-profit organizations. However, Sherman and Gold (1985)

were the first to apply DEA to banking. DEA is a mathematical linier programming approach based on the technical efficiency concept, which can be used to measure and analyze the technical efficiency, which reflects the ability of a firm to obtain maximum output from a given set of inputs, of different entities: productive and non productive, public and private, profit and nonprofit seeking firms. There is an increasing concern in measuring and comparing efficiency of firms under different environments and activities.

Usually, the DEA does not require specifying the functional form or distributional forms for errors and it is more flexible than the parametric approach. It can be applied to multi-input and multi-output variables, thus, it has been extensively used in measuring the efficiency of banks in many countries. However, the DEA has some limitations. When the integrity of data has been violated, DEA results cannot be interpreted with confidence. Furthermore, the DEA approach does not allow for any error in the data.

4.7 Sample Size:

The motivation of this paper is to investigate the banking performance and efficiency using the ratio analysis and the DEA respectively. To achieve the objective of this study, five Islamic banks are included in the analysis, which are Islami Bank Bangladesh Limited, Al-Arafah Islami Bank Limited, Social Islamic Bank Limited, Shahjalal Islami Bank Limited and First Security Islami Bank Limited.

Total deposits are estimated as an input variable, whereas total assets and total financing are considered as output variables. The data are acquired from the annual reports of each respective banks.

5. Empirical Result and Discussion:

5.1 Ratio Analysis:

5.1.1 Profitability Ratios: ROA and ROE:

Table 1 shows that the ROA of AIBL was greater than other Islamic banks in the year 2006. Then it decreased significantly from 2.20 % to 0.519% (323.89% decreases) at the end of year 2010. In year 2007, SJIBL had the higher ROA (2.28%) but year 2008 and 2009 it decreased. After comparing the overall ROA among these banks, we found that all banks except SJIBL and AIBL have the consistency in increasing the ROA during the period (2006-2010). Finally, the ROA on average is higher in SJIBL (2.0309%) than other Islamic banks. This indicates that SJIBL has better managerial performance to that of other Islamic banks. At the same time, the risk level of this profitability, which is measured by the standard deviation, are quite small for all the banks.

Table 1. Ratio Analysis for ROA

Bank	Year					Mean	Std.Dev.
	2006	2007	2008	2009	2010		
IBBL	0.754%	0.579%	0.929%	0.999%	1.006%	0.854%	0.002
AIBL	2.200%	1.151%	1.797%	1.771%	0.519%	1.488%	0.007
SIBL	0.293%	0.611%	0.678%	0.739%	0.895%	0.643%	0.002
SJIBL	2.170%	2.282%	1.854%	1.817%	2.630%	2.031%	0.003
FSIB	0.573%	0.114%	0.334%	0.681%	1.010%	0.543%	0.003

Table 2 shows that the ROE of FSIB is slightly lower than the average of other banks. One of the reasons of this lower ROE is that FSIB is paying a much higher share in profit for its depositors than the available deposit rate compared to the other Islamic

banks. If we compare all the banks based on the average, AIBL has the highest ratio (19.525%), showing that it has good managerial performance.

Table 2. Ratio Analysis for ROE

Bank	Year					Mean	Std.Dev.
	2006	2007	2008	2009	2010		
IBBL	13.59%	9.68%	14.40%	14.41%	15.72%	13.56%	0.023
AIBL	27.80%	17.05%	24.70%	24.10%	3.98%	19.53%	0.095
SIBL	5.88%	9.01%	10.82%	8.31%	11.76%	9.15%	0.023
SJIBL	38.44%	23.21%	22.68%	21.73%	30.71%	11.54%	0.071
FSIB	11.68%	2.70%	4.11%	11.41%	15.31%	9.04%	0.054

5.1.2 *Credit Risk Performance: ETA and CAR:*

The ETA ratio shows the potential of protection of the banks against investment and assets. It also demonstrates capacity of shock absorbing for losses of potential loan assets and how the Islamic banks use their equity funds to support the bank's assets side. The higher ratio is favorable for the bank as it equates to stronger ability to maintain the assets losses.

Table 3. Ratio Analysis for ETA

Bank	Year					Mean	Std.Dev.
	2006	2007	2008	2009	2010		
IBBL	5.547%	5.983%	6.448%	6.934%	6.400%	6.262%	0.005
AIBL	7.909%	6.751%	7.278%	7.347%	13.036%	8.464%	0.026
SIBL	4.980%	6.784%	6.264%	8.893%	7.610%	6.906%	0.015
SJIBL	5.645%	13.062%	12.718%	11.169%	11.453%	10.809%	0.034
FSIB	4.908%	4.210%	8.126%	5.972%	6.599%	5.963%	0.015

Table 3 shows that the average ETA of SJIBL is 10.809%. Other banks, however, have attained a result of less than 10%, which implies that they rely on a large proportion of liabilities instead of equity to support their assets. The high ETA for SJIBL explains that the equity's fund for SJIBL can better support the total asset than the other banks.

5.1.3 *Capital Adequacy Ratio (CAR):*

Capital adequacy ratios measure the amount of a bank's capital in relations to the amount of its risk weighted credit exposures. The higher the capital adequacy ratios a bank has, the greater the level of unexpected losses it can absorb before becoming insolvent. Table 4 shows that, on average, AIBL has a higher ratio (11.98%) than other Islamic banks. However, having to high of a CAR may be translated to the bank having a large amount of money stuck in its provisions or risk management, further implying that that there will be less money left for investment or for the continuation of the business activity. The usual standard benchmark for a CAR is somewhere around 12%.

Table 4. Ratio Analysis for CAR

Bank	Year					Mean	Std.Dev.
	2006	2007	2008	2009	2010		
IBBL	9.43%	10.61%	10.72%	11.65%	11.06%	10.70%	0.008
AIBL	10.71%	10.92%	11.21%	11.25%	14.49%	11.98%	0.017
SIBL	9.05%	13.29%	11.43%	10.67%	11.81%	11.25%	0.016
SJIBL	11.07%	11.59%	13.73%	9.47%	10.90%	11.36%	0.015
FSIB	9.79%	9.15%	16.49%	10.91%	7.77%	10.83%	0.034

5.1.4 *Managerial efficiency: IER:*

The Income to expense (IER) is the most commonly and widely used ratio in the banking sector to assess the managerial efficiency in generating total income in respect of controlling its operating expenses. Table 5 shows that the IER of AIBL was greater than other Islamic banks in year 2006. When comparing the overall ROE among these banks, we found that only SIBL has the consistency in increasing the IER during this the period of 2006-2010. Finally, on average, the IER of SJIBL (186.52%) is higher than others Islamic banks. This higher IER ratio indicates that SJIBL has the ability and efficiency in generating more total income in comparison to its total operating expenses.

Table 5. Ratio Analysis for IER

Bank	Year					Mean	Std.Dev.
	2006	2007	2008	2009	2010		
IBBL	66.61%	36.96%	64.98%	74.86%	73.08%	63.30%	0.153
AIBL	263.33%	138.39%	103.66%	94.55%	169.16%	153.82%	0.679
SIBL	17.13%	35.57%	40.06%	45.20%	49.64%	37.52%	0.126
SJIBL	203.87%	206.16%	159.33%	122.26%	240.95%	186.52%	0.462
FSIB	53.44%	10.71%	27.21%	56.66%	64.66%	42.53%	0.227

5.1.5 *Management Ability: AU*

The asset utilization ratio (AU) measures the management's ability to make the best use of its assets to generate revenue. A high ratio for a particular bank indicates that it has a more efficient management. Table 6 shows that, in the year 2006, AIBL had the higher AU ratio (4.00%) compared to other Islamic banks. But the following year its AU decreased very sharply. We found that only SIBL has a consistently increasing AU ratio during the tested period. On average, the AU of SJIBL (4.47%) is higher than other banks. This shows that SJIBL is using its assets effectively up to its optimum capacity in order for it to generate total revenues.

Table 6. Ratio Analysis for AU

Bank	Year					Mean	Std.Dev.
	2006	2007	2008	2009	2010		
IBBL	1.54%	1.51%	2.20%	1.91%	1.90%	1.81%	0.003
AIBL	4.00%	1.93%	3.39%	3.27%	3.63%	3.24%	0.008
SIBL	1.50%	1.95%	2.64%	2.66%	2.97%	2.34%	0.006
SJIBL	3.95%	4.63%	4.10%	3.46%	4.47%	4.12%	0.005
FSIB	0.99%	0.47%	0.61%	1.56%	1.89%	1.10%	0.006

5.2 Empirical result on the Data Envelopment Analysis (DEA):

This part discusses the findings of the efficiency index summary and Malmquist index summary of Islamic banking in Bangladesh using the DEA approach. Table 7 shows a summary of the overall efficiency, including the technical efficiency (TE) from constant return to scale and TE from variable return to scale. A Constant Return to Scale (CRS) refers to when the output increases are at the same proportional change. Unlike CRS, variable returns to scale (VRS) means that the proportional change varies in term of input and output. In this study, the overall summary is 1.000, which means that the TE from constant return to scale and TE from variable return to scale are efficient. The scale efficiency is also founded to be 1.000 because the scale efficiency is equal to the ratio of technical efficiency from constant return to scale and technical efficiency from variable return to scale.

Table 7. Efficiency Summary

Bank Name	TE from CRS	TE from VRS	Scale of Efficiency
AIBL	1.000	1.000	1.000
IBBL	1.000	1.000	1.000
FSIB	1.000	1.000	1.000
SJIBL	1.000	1.000	1.000
SIBL	1.000	1.000	1.000
Mean	1.000	1.000	1.000

Table 8 summarizes the distances, which means the changes efficiency in terms of years. Here, the "t" is considered as the current year, "t-1" and "t+1" refer to the previous and following years respectively. In this table, "t-1" in year 2006 and "t+1" in the final year is not defined because the change of measurement is not possible due to unavailable data. If the efficiency result is 1, it means that the result is accurately efficient, and the more it is closer to 1, the more efficient it is. A result of more than 1 refers to improved efficiency in terms of efficiency measurement. The overall results show that changes in efficiency in terms of years have improved from year 2006 to 2010, indicated by an efficiency of more than 1.000.

Table 8. Summary of Distances

	TE from CRS related to ΔTE Year:			Variable Returns to Scale (VRS)
	t-1	t	t+1	
Year 2006				
AIBL	0.000	1.000	1.074	1.000
IBBL	0.000	1.000	0.945	1.000
FSIB	0.000	1.000	1.088	1.000
SJIBL	0.000	1.000	1.062	1.000
SIBL	0.000	1.000	1.118	1.000
Mean	0.000	1.000	1.057	1.000

Year 2007				
AIBL	0.971	1.000	1.017	1.000
IBBL	1.120	1.000	1.056	1.000
FSIB	1.014	1.000	1.054	1.000
SJIBL	1.000	1.000	1.027	1.000
SIBL	1.252	1.000	0.932	1.000
Mean	1.071	1.000	1.017	1.000
Year 2008				
AIBL	1.048	1.000	1.010	1.000
IBBL	0.957	1.000	1.029	1.000
FSIB	0.957	1.000	0.995	1.000
SJIBL	1.026	1.000	1.000	1.000
SIBL	1.258	1.000	1.830	1.000
Mean	1.049	1.000	0.973	1.000
Year 2009				
AIBL	0.998	1.000	1.104	1.000
IBBL	1.055	1.000	1.107	1.000
FSIB	1.068	1.000	0.998	1.000
SJIBL	1.036	1.000	1.337	1.000
SIBL	1.021	1.000	1.000	1.000
Mean	1.036	1.000	1.109	1.000
Year 2010				
AIBL	0.972	1.000	0.000	1.000
IBBL	1.090	1.000	0.000	1.000
FSIB	1.015	1.000	0.000	1.000
SJIBL	0.992	1.000	0.000	1.000
SIBL	1.576	1.000	0.000	1.000
Mean	1.129	1.000	0.000	1.000

Note: t-1 in the first year and t+1 in the final year are not defined.

Table 9 represents the Malmquist index summary. The Malmquist Productivity Index (MPI) measures productivity changes along with time variations. It can be decomposed into changes in efficiency and technology. This table includes the change of efficiency, change of technical efficiency, change of pure efficiency, change of scale efficiency, and the change of total factor efficiency. The MPI is a popular technique for efficiency measurement of banks.

Table 9. Summary of Malmquist Index

	ΔEfficiency	ΔTE	ΔPure Efficiency	ΔScale Efficiency	ΔTotal Factor Efficiency
Year 2007					
AIBL	1.000	0.951	1.000	1.000	0.951
IBBL	1.000	1.089	1.000	1.000	1.089
FSIB	1.000	0.965	1.000	1.000	0.965
SJIBL	1.000	0.970	1.000	1.000	0.970
SIBL	1.000	1.058	1.000	1.000	1.058
Mean	1.000	1.007	1.000	1.000	1.007
Year 2008					
AIBL	1.000	1.015	1.000	1.000	1.015
IBBL	1.000	0.952	1.000	1.000	0.952
FSIB	1.000	1.876	1.000	1.000	1.876
SJIBL	1.000	1.000	1.000	1.000	1.000
SIBL	1.000	1.162	1.000	1.000	1.162
Mean	1.000	1.201	1.000	1.000	1.201
Year 2009					
AIBL	1.000	0.994	1.000	1.000	0.994
IBBL	1.000	1.013	1.000	1.000	1.013
FSIB	1.000	1.036	1.000	1.000	1.036
SJIBL	1.000	1.018	1.000	1.000	1.018
SIBL	1.000	1.289	1.000	1.000	1.289
Mean	1.000	1.070	1.000	1.000	1.070
Year 2010					
AIBL	1.000	0.938	1.000	1.000	0.938
IBBL	1.000	0.992	1.000	1.000	0.992
FSIB	1.000	1.008	1.000	1.000	1.008
SJIBL	1.000	0.861	1.000	1.000	0.861
SIBL	1.000	1.255	1.000	1.000	1.255
Mean	1.000	1.010	1.000	1.000	1.010

The overall result of the Malmquist Index Summary shows that changes of technical efficiency and changes of total factor efficiency is the same for all of the banks involved. This is because the changes of total factor efficiency depend on the changes of technical efficiency. On average, we found that the result is more than 1.000, which means an improved level of efficiency. However, in terms of change of efficiency,

change of pure efficiency and change of scale efficiency, the results are 1.000, which means that they are efficient.

Table 10. Malmquist Index Summary of Bank Means

	ΔEfficiency	ΔTE	ΔPure Efficiency	ΔScale Efficiency	ΔTotal Factor Efficiency
AIBL	1.000	0.974	1.000	1.000	0.974
IBBL	1.000	1.010	1.000	1.000	1.010
FSIB	1.000	1.219	1.000	1.000	1.219
SJIBL	1.000	1.191	1.000	1.000	1.191
SIBL	1.000	0.960	1.000	1.000	0.960
Mean	1.000	1.071	1.000	1.000	1.071

The above stated Table 10 is the Malmquist Index Summary of the Banks which provides the efficiency statistics separately in for AIBL, IBBL, FSIB, SIBL and SJIBL. If we compare the overall means among these banks, First Security Islami Bank (FSIB) seems more proficient in terms of efficiency.

6. Conclusion:

This study is aimed at investigating the performance and efficiency of Islamic banks in Bangladesh, within the period of 2006 to 2010. It uses ratio analysis to measure the performance of the Islamic banks and DEA with Malmquist Index to measure the efficiency of the Islamic banks. The result concludes that Shajalal Islami Bank limited has performed better than other Islamic banks in terms of ratios analyzed, namely ROA, ROE, ETA, CAR, IER and AU. Moreover, the result of DEA reveals that the trend of all Islamic banks was on the rising stage during year 2006 to year 2010, suggesting that the Islamic banks have improved their efficiency over the study period. In every aspect, AIBL, IBBL, FSIB, SJIBL and SIBL seem competent in terms of efficiency. More specifically, between these five banks, First Security Islami Bank (FSIB) seems to be the most competent in terms of efficiency.

6.1 *Limitations and Suggestions:*

This empirical research has some limitations and further research should be considered to gather more information. In this paper we have focused only on six ratios due to data constraints. For further study, we should consider non-performing ratios. On another note, in the DEA application we also have some limitations as well. Firstly, the DEA approach does not allow for any error in the data which is quite unrealistic. In this case, the stochastic frontier approach has to be focused on. Secondly, we only use five years of yearly data. The data was taken from the Annual Reports and the duration was from 2006 to 2010. Lastly, in this research we only used one input and two outputs. For further research, the researchers need to increase the number of time period use as well as to increase the number of inputs and outputs. The last suggestion would be to also include a comparison with conventional banks.

7. References:

Ahmad, A.U.F. and Hassan, M.K. (2007), "Regulation and Performance of Islamic Banking Bangladesh", *Thunderbird International Business Review*, Vol. 49 No. 2, pp. 251-277.

Ahmad, K. (2000), "Islamic finance and banking: the challenge and Prospects", *Review of Islamic Economics*, Vol. 9, pp. 57-82.

Ahmed, E., Rahman, Z., and Ahmed, R.I. (2006), "Comparative analysis of loan recovery among nationalized, private, and Islamic commercial banks of Bangladesh", *BRAC University Journal*, Vol. 3 No. 1, pp. 35-52.

Chapra, M.U. (2000), "Why has Islam prohibited interest: rationale behind the prohibition of interest", *Review of Islamic Economics*, Vol. 9, pp. 5-20.

Charnes, A., Cooper, W.W., and Rhodes, E. (1978), "Measuring Efficiency of Commercial Banks with the Use of Financial Ratios: Data Envelopment Conventional Banks", *IIUM Journal of Economics and Management*, Vol. 7 No. 1, pp. 1-25.

Chen, K.H., and Shimerda, T. (1981), "An Empirical Analysis of Useful Financial Ratios", *Financial Management*, Vol. 10 No. 1, pp. 51-60.

Dar, H., and Presley, J. (2000), "Lack of Profit Loss Sharing in Islamic Banking: Management and Control Imbalances", *International Journal of Islamic Financial Services*, Vol. 2 No. 2, pp. 3-18.

Koopmans, T.C. (1951), "An analysis of production as an efficient combination of activities", In Koopmans, T.C. (Ed.), *Activity Analysis of Production and Allocation*, Monograph No.13, Cowles Commission for Research in Economics, Wiley, New York, NY.

Kumbhakar, S.C. and Lovell, C.A.K. (2003), *Stochastic Frontier Analysis, Cambridge*, University Press, Cambridge.

Molla, R.I., Moten R.A., Gusau, S.A., and Gwandu, A.A. (1988), *Frontiers and Mechanics of Islamic Economics*, University of Sokoto, Nigeria.

Ross, S.A., Westerfield, R.W., and Jaffe, J. (2005), *Corporate Finance*, McGraw-Hill Inc.

Sabi, M. (1996), "Comparative Analysis of Foreign and Domestic Bank Operation in Hungary", *Journal of Comparative Economics*, Vol. 22 No. 2, pp. 1979-88

Sarker, M.A.A. (1999), "Islamic banking in Bangladesh: performance, problems, and prospects", *International Journal of Islamic Financial Services*, Vol. 1 No. 3, pp. 15-36.

Shameem, A.K.M. (1995), "Impact of Flexible Interest Rate on Savings and Investment", *Bangladesh Journal of Political Economy*, Vol. 13 No. 2, pp. 62-78.

Sherman, D. and Gold, F. (1985), "Branch Operating Efficiency: Evaluation with Data Envelopment Analysis", *Journal of Banking and Finance*, Vol. 9, pp. 297-315.

Siddiqi, M.N. (1983), *Banking without Interest*, Leicester, The Islamic Foundations.

Warde, I. (2000), Islamic Finance in the Global Economy, Edinburgh University Press.